

# PROTURA (INSECTA) OF THE NEW HEBRIDES

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## ABSTRACT

TUXEN, S. L. 1977. Protura (Insecta) of the New Hebrides. *Rec. S. Aust. Mus.*, 17 (18): 299-307.

Protura collected in the New Hebrides in 1971 are described. Nine species were found, four of which are described as new, viz. *Eosentomon penelopae* and *insularum*, *Isoentomon pumilioides* and *Berberentulus tannae*. The species composition compares well with the known fauna of the Bismarck Archipelago and the Solomon Islands.

## INTRODUCTION

Following the publication of our paper on the Solomon Island Protura (Tuxen & Imadaté

1975a), Ms Penelope Greenslade of the South Australian Museum, Adelaide, separated out the Protura from the Berlese samples collected in the New Hebrides by the Royal Society—Percy Sladen Expedition to these islands in 1971 which are lodged in the South Australian Museum and forwarded them to me for identification. Although only a small collection of 52 specimens, the material contains some highly interesting representatives of no less than nine species which are the subject of this paper.

I am grateful to Ms Greenslade for giving me the opportunity to study this material.

## SYSTEMATIC TREATMENT

### I. KEY TO THE KNOWN PROTURA OF THE NEW HEBRIDES

1. Spiracles present; all three pairs of abdominal legs two-segmented (*Eosentomoidea*)..... 2  
Spiracles absent; only the first pair of abdominal legs two-segmented (*Acerentomoidea*)..... 8
2. Sensilla e in foretarsus missing, sensilla g spiniform ..... *Isoentomon pumilioides* n. sp.  
Sensillae e and g in foretarsus spatulate (*Eosentomon*) ..... 3
3. b'1 absent in foretarsus; abdominal sterna I-VII with central posterior seta; tergal seta p 2 displaced anteriorly on abd. II-VI ..... *Eosentomon noonadanae* Tx. & Imad.  
b'1 present; abdominal sterna I-VII with an even number of setae; tergal p 2 not displaced ..... 4
4. t l in foretarsus close to  $\alpha$  3; f l and b short; stern. VIII with two anterior setae, *Eosentomon insularum* n.sp.  
t l midway between  $\alpha$  3 and  $\alpha$  3'; f l and b long; stern. VIII without anterior setae..... 5
5. Seta p 1' on abd. terg. VI short and on line with p 1 and 2, close to p 2; terg. X-XI with eight setae  
*Eosentomon oceaniae* Tx. & Imad.  
Seta p 1' on abd. terg. VI long, placed in row with p 2' on hind margin ..... 6
6. Terg. X-XI with eight setae; p 1' on terg. VII on line with p 2' ..... *Eosentomon penelopae* n.sp.  
Terg. X with less than eight setae; p 1' on terg. VII on line with p 1 and 2 and close to p 2 ..... 7
7. Terg. X with four setae, no. 1 and 4 ..... *Eosentomon sakura* Imad. & Yos.  
Terg. X with two setae (No. 4) or none ..... *Eosentomon wygodzinskyi* Bon.
8. Sensilla a' in foretarsus broadly vase-shaped, short, only reaching  $\delta$  3; sensilla f midway between e and g;  
terg. VII with six anterior setae; stern. XI with six setae ..... *Berberentulus capensis* (Wom.)  
Sensilla a' longer, sword-shaped, reaching  $\delta$  4; sensilla f close to e; terg. VII with two anterior setae;  
stern. XI with four setae ..... *Berberentulus tannae* n.sp.

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## II. SYNOPSIS OF THE SPECIES

1. *Eosentomon oceaniae* Tuxen &

Imadaté 1975a: p.350

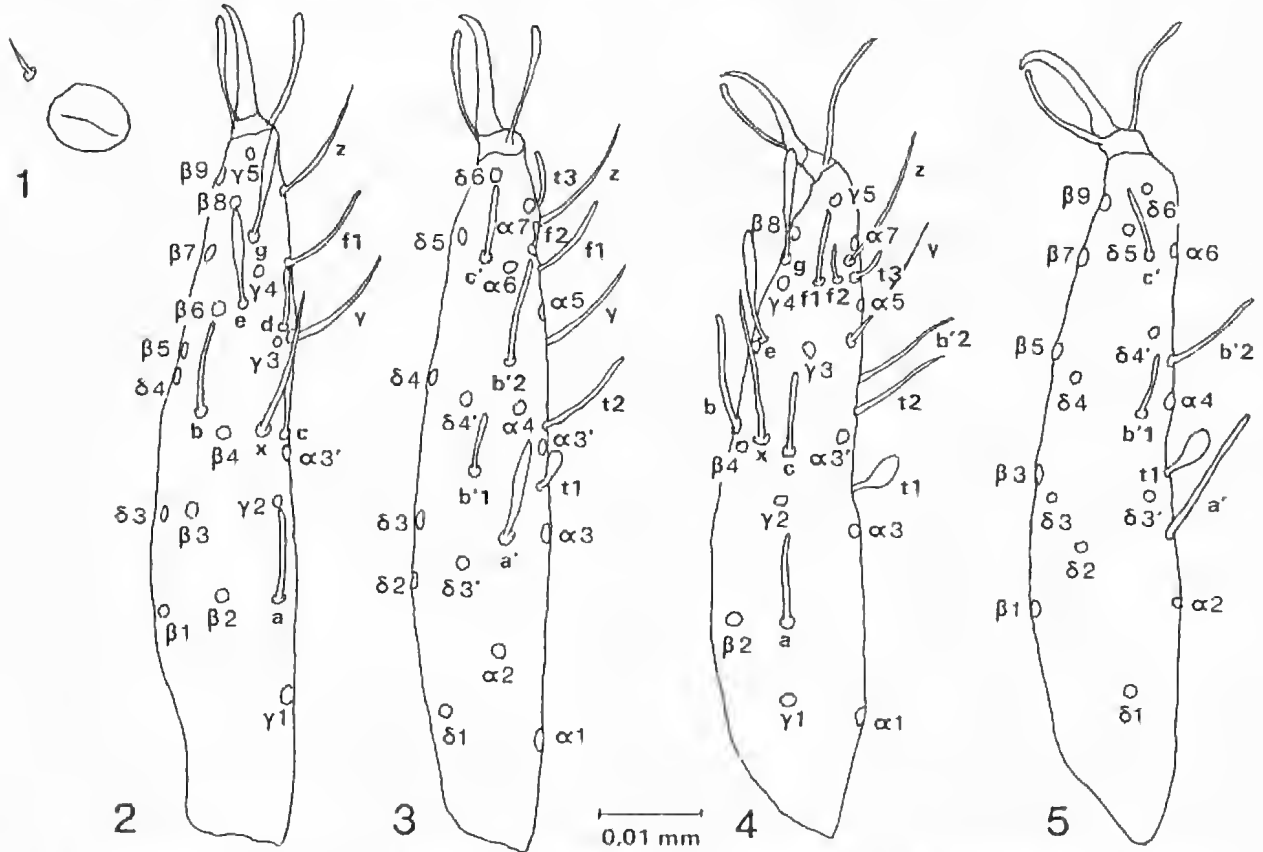
Three specimens are present of this species which is easily recognisable among the *Eosentomon* species of the *swani* group by the position of seta p 1' on terg. VI.

*Occurrence on the New Hebrides*: Efate Island, Point Narabau, 100 m from high water mark on old beach surface, 17° 45' S, 168° 24' E. Simple mesophyll notophyll vine forest, in soil of 0-8 cm

depth. Coll. no. NH 19. K. E. Lee leg. July 13, 1971. One ♂, one matusus junior.

Ancityum Island, near top of steep slope above E side of Anelcauhat Bay, 20° 15' S, 169° 46' E. Disturbed coastal forest with *Acacia spirorbis*, in soil of 4-6 cm depth. Coll. no. NH 26. K. E. Lee leg. July 23, 1971. One ♀.

*Further distribution*: Bismarck Archipelago and Solomon Islands, widely distributed (Tuxen & Imadaté 1975a: p.352). Australia: North Queensland (Tuxen 1967: p.6 and Tuxen & Imadaté 1975b: p.195).



Figs. 1-3: *Eosentomon penelopae* n.sp. 1: Pseudoculus. 2: Foretarsus in ventral-exterior view. 3: Foretarsus in dorsal-interior view. Figs. 4-5: *Eosentomon wygodzinskiyi* Bon. from the New Hebrides. Foretarsus in exterior and interior views.

2. *Eosentomon penelopae* n.sp.

Figs. 1-3

This species is related to *E. solomonense* Tx. & Imad, 1975 from the Solomon Islands, but it is smaller, pseudoculus is smaller, p 4' is missing on terg. II-III and terg. VII has four setae instead of two.

Length of body 750  $\mu$ m, of foretarsus without claw 75  $\mu$ m.

Mouthparts normal, clypeal apodeme not visible (specimen seen in directly lateral view). Pseudoculus oval, small, PR = 12.5 (Fig. 1). Labral setae present.

Foretarsus (Figs. 2-3). All setae inclusive of b'1 present, position and size as in *solomonense*.

f and g spatulate, t 1 midway between  $\alpha$  3 and 3', BS = 1.1. Tarsus small, TR = 6.0. Empodium shorter than claw, EU = 0.9.

Empodium of middle and hind leg short.

*Chaetotaxy*: On thorax p 1' on segment III long, behind the line p 1-2; the abdominal chaetotaxy set out in Table 1—p 4' absent on terg. II-III.—a 3 present on terg. IV; a 4 and 5 present on terg. V-VII.—p 1' short, on line with p 2', on terg. VII.—p 1'-2 not anteriorly displaced on terg. VIII.—no. 1 and 2 on terg. XI extremely small.

Female squama genitalis unknown.

*Holotype* and only known specimen: ♂ from Erromanga Island, New Hebrides, 8 km SW of

TABLE 1

Abdominal chaetotaxy of *Eosentomon penelopae* n.sp. Numbers above a line refer to the number of setae in the anterior row, numbers below the same line refer to the number of setae in the posterior row.

segment	I	II-III	IV	V-VI	VII	VIII	IX-X	XI	Telson
tergum	$\frac{4}{8^{(1)}}$	$\frac{10}{14}$	$\frac{10}{16}$	$\frac{4}{16}$	$\frac{4}{16}$	$\frac{6}{9}$	8	8	9
sternum	$\frac{4}{4}$	$\frac{6}{4}$	$\frac{6}{10}$	$\frac{6}{10}$	$\frac{6}{10}$	7	4	8	12

(1) The presence or absence of the very small p 5 is very difficult to determine in most species.

Ipotak, 18° 54'S, 169° 13'E. In soil of remnant grove of *Podocarpus imbricatus*, 0-4 cm depth. Coll. no. NH 36. K. E. Lee leg. Aug. 9, 1971. In the South Australian Museum, Adelaide.

Named in honour of Ms Penelope Greenslade.

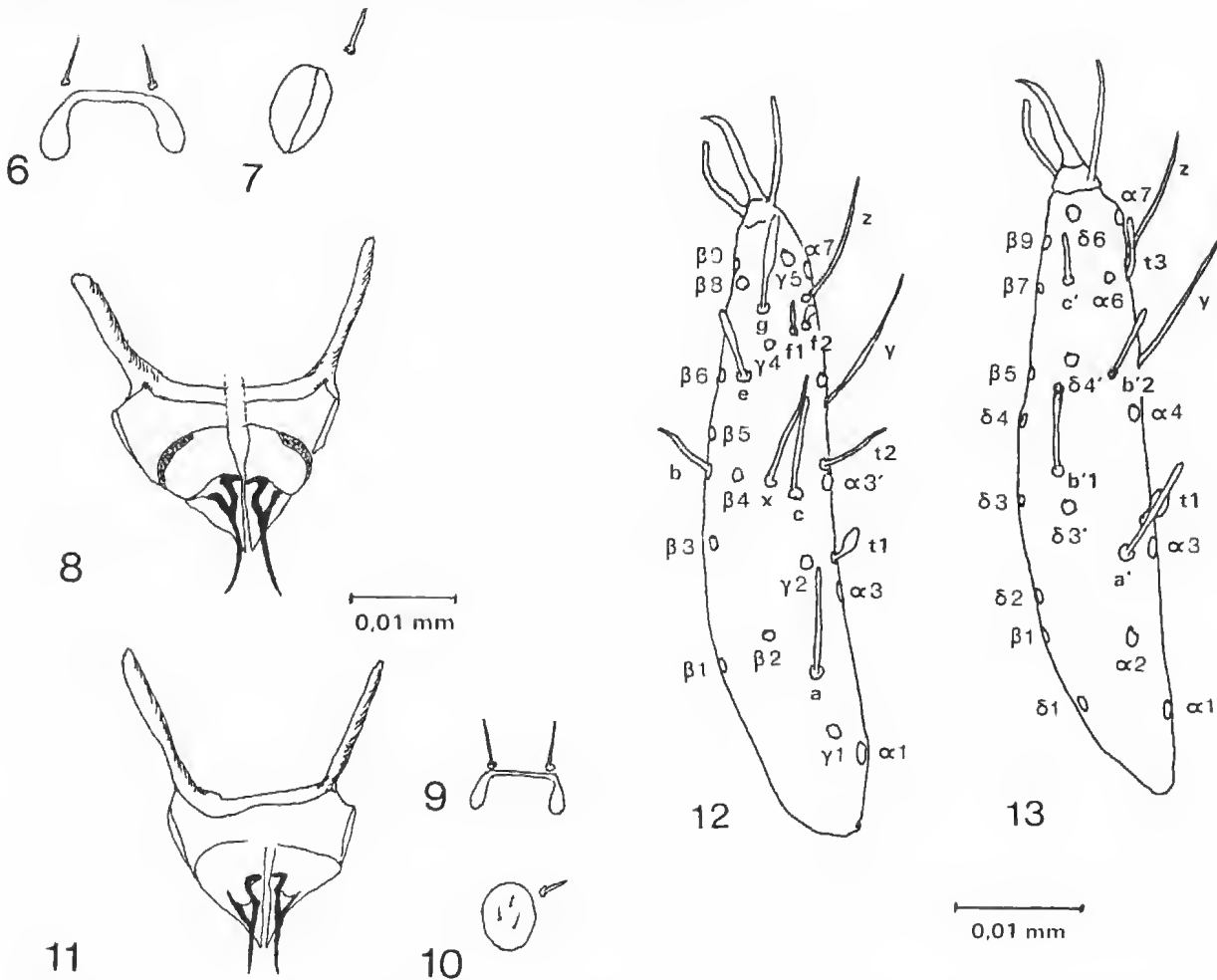
3. *Eosentomon wygodzinskyi* Bonet 1950: 122

Figs. 4-8

Syn. *E. solare* Tuxen & Imadaté 1975a: p. 356.

This species was described by Bonet in 1950 from two females from Itaguaí, Brazil, and redescribed by Tuxen (1964: 137). In 1975

Imadaté and Tuxen described the new species *solare* from a fairly large series from the Bismarek Archipelago and Solomon Islands. We mentioned that "the difference, such as the relative length of the filum processus of the female squama genitalis and of the foretarsal sensilla c', may be significant, although these two forms closely resemble each other". In 1976, after a renewed examination of the type of *wygodzinskyi* now in the Zoological Museum, Copenhagen, I concluded that "perhaps we did the wrong thing in describing *solare*" and the new material from the New Hebrides has convinced me of the synonymy.



Figs. 6-8: *Eosentomon wygodzinskyi* Bon. from the New Hebrides. 6: Clypeal apodeme. 7: Pseudoculus. 8: Female squama genitalis in ventral view. Figs. 9-13: *Eosentomon insularum* n.sp. 9: Clypeal apodeme. 10: Pseudoculus. 11: Female squama genitalis in ventral view. 12-13: Foretarsus in exterior and interior views.

Whereas the material of "solare" from the Bismarck and Solomon Islands showed no variation, the present material varies in chaetotaxy and so I give a short description with drawings of a typical specimen from Aneityum, New Hebrides.

Labral setae present, clypeal apodeme with broad "clubs", pseudoculus oval, PR = 13 (Fig. 4).

Foretarsus without claw 77 μm, BS = 1.2, TR = 5.0. Length and position of sensillae as in "solare" (Fig. 5-6).

Female squama genitalis, Fig. 7.

The usual abdominal chaetotaxy is tabulated in Table 2—terg. V with anterior setae a 4, 5.—terg. VI-VII only a 5.—terg. X with setae no. 4 or none

TABLE 2

Usual abdominal chaetotaxy of *Eosentomon wygodzinskyi* Bonet. Numbers above a line refer to the number of setae in the anterior row, numbers below the same line refer to the number of setae in the posterior row.

segment	I	II-III	IV	V	VI	VII	VIII	IX	X	XI	Telson
tergum	$\frac{4}{8}$	$\frac{10}{16}$	$\frac{10}{16}$	$\frac{4}{16}$	$\frac{2}{16}$	$\frac{2}{16}$	$\frac{6}{9}$	8	0	4	9
sternum	$\frac{4}{4}$	$\frac{6}{4}$	$\frac{6}{10}$	$\frac{6}{10}$	$\frac{6}{10}$	$\frac{6}{10}$	7	4	4	8	12

at all.—terg. XI with setae no. 3 and 4 and one or two medial microchaetae.—seta p 1' on line with p 1-2 and close to p 2 on terg. VII.—p 1''-2 not displaced on terg. VIII.

However, this is not exactly identical to the chaetotaxy of the type specimens of either *wygodzinskyi* or *solare*. The chaetotaxy of important abdominal segments in all known specimens of the species is set out in Table 3.

TABLE 3

Comparison of abdominal chaetotaxy for selected segments of all known examples of *Eosentomon wygodzinskyi* Bonet and *Eosentomon solare* Tuxen & Imadaté.

	terg. ....	IV	V	VI	VII	X	XI
<i>wygodzinskyi</i> from Brazil	.....	10	4	4	2	2	4
"solare" from Bismarck Archipelago and Solomon Islands	.....	10	4	4	2	2	4
6 <i>wygodzinskyi</i> from Aneityum, New Hebrides	.....	10	4	2	2	0	4 (8) var. a.
2 <i>wygodzinskyi</i> from Erromanga, New Hebrides	.....	10	4	2	2	0	6 (8) var. a.
1 <i>wygodzinskyi</i> from Erromanga, New Hebrides	.....	10	4	4	2	2	4 f. princ.
2 <i>wygodzinskyi</i> from Malekula, New Hebrides	.....	4	4	4	2	2	4 var. b.

In one specimen from Aneityum seta no. 4 was present on one side of terg. X. The medial microchaetae on terg. XI may all be present, or there may be only two of them or none at all. They are so small that they are very hard to see.

I deduce from this survey that the principal form is found in Brazil and all over the Bismarck Archipelago and Solomon Islands in all 27 adult specimens, as well as in one specimen on Erromanga. The var. a with reduction of anterior setae on terg. VI and X is found on Aneityum and Erromanga (eight specimens). The var. b with reduction of anterior setae on terg. IV is found on Malekula (two specimens).

*Occurrence on the New Hebrides:* Malekula Island, Toro, terrace-like surface on mountain side ca. 2 km NNW of summit of Mount Yang'abalé. 16° 16'S, 167° 26'E. Complex mesophyll vine forest, in soil of 0-4 cm depth. Coll. no. NH 57-58. K. E. Lee leg. Oct. 1, 1971. One ♀, one mat. jun., one larva II.

Erromanga Island, 1-2 km NNE of Nuangkau River bridge, 10-11 km WSW of Ipotak. 18° 53'S, 169° 12'E, resp. 18° 54'S, 169° 11'E. Mixed mesophyll evergreen vine forest, in soil of 0-4 cm depth. Coll. no. NH 34-35. K. E. Lee leg. Aug. 3-7, 1971. Two ♂, one ♀, one mat. jun. and one larva I.

Aneityum Island 4 km NE by N of Anelcauhat 20° 11'S, 169° 47'E. Mixed rainforest, in soil of 0-4 cm depth. Coll. no. NH 22. K. E. Lee leg. July 20, 1971. One ♀.—Near top of steep slope above E side of Anelcauhat Bay 20° 15'S, 169° 46'E. Coastal forest with *Acacia spirorbis*, in soil of 0-6 cm depth. Coll. no. NH 26. K. E. Lee leg. July 23, 1971. One ♂, one ♀, one mat. jun.

*Further distribution:* Bismarck Archipelago and Solomon Islands (Tuxen & Imadaté, 1975a) and Brazil (Tuxen, 1976).

**4. *Eosentomon sakura* Imadaté & Yosii 1959: 7**

This species is described in detail by Imadaté, 1974 and is easily recognised by the chaetotaxy of terg. X where only setae no. 1 and no. 4 are present.

*Occurrence in the New Hebrides:* Malekula Island, 500 m E of SE corner of Lambubu Bay, 16° 12'S, 167° 23'E. Complex mesophyll vine forest, in soil of 0.4 cm depth. Coll. no. NH 61. K. E. Lee leg. Oct. 4, 1971. One ♂, one ♀, one mat. jun.—Lamdorr, 3 km NNE of Wintua village, SW Bay, 16° 28'S, 167° 27'E. Mixed mesophyll vine forest, in soil of 0.4 cm depth. Coll. no. NH 67. K. E. Lee leg. Oct. 11, 1971. One ♂.

*Further distribution:* In Japan this species is the commonest *Eosentomon* and has been found at almost all collecting sites, rarest on Hokkaido. Further afield it occurs in Formosa (Taiwan) (Imadaté 1964), Bismarck Archipelago and Solomon Islands (Tuxen & Imadaté 1975).

**5. *Eosentomon insularum* n. sp.**

Figs. 9-13

This species is distinguishable from other New Hebrides Protura in the position of sensilla t 1 in

foretarsus (near  $\alpha$  3) and in the presence of two anterior setae on stern. VIII. It seems to be most closely related to *E. asahi* Imad. from Japan, but differs in many respects, is much smaller, has a different position of t 1 on foretarsus as well as differences in chaetotaxy.

Length of body 560  $\mu$ m, of foretarsus without claw 58  $\mu$ m.

Mouthparts and clypeal apodeme of common shape (Fig. 8), labial setae present. Pseudoculus small, with three small "lines" (Fig. 9), PR = 12-13.

Foretarsus (Figs. 10-11) with all sensillae present incl. b'1. t 1 near  $\alpha$  3, BS = 0.85. e and g spatulate, f 1 small, seta-like, f 2 knob-like. a' weakly broadened basally, b'1 nearer to  $\delta$  3' than to  $\delta$  4', c' short. Tarsus small, TR = 7.0.

Empodium of middle and hind leg short, one-fifth the claw.

Chaetotaxy: On thorax p 1' on segment III long, behind the line p 1-2; abdominal chaetotaxy set out in Table 4—a 3 missing on terg. V-VI and a 1 and 3 on terg. VII—terg. XI with setae no. 3 and 4, but in one case with all setae 1-4,—p 1' long on all terga I-VI, short and on line with p 2' on terg. VII.—p 1''-2 not displaced on terg. VIII.

TABLE 4

Abdominal chaetotaxy of *Eosentomon insularum* n.sp. Numbers above a line refer to the number of setae in the anterior row; numbers below the same line refer to the number of setae in the posterior row.

segment	I	II-III	IV	V-VI	VII	VIII	IX-X	XI	Telson
tergum	$\frac{4}{8}$	$\frac{10}{16}$	$\frac{10}{16}$	$\frac{8}{16}$	$\frac{6}{16}$	$\frac{6}{9}$	8	4	9
sternum	$\frac{4}{4}$	$\frac{6}{4}$	$\frac{6}{10}$	$\frac{6}{10}$	$\frac{6}{10}$	$\frac{2}{7}$	4	8	12

Female squama genitalis (Fig. 12) of the *swani* or *kumei* type.

*Holotype:* ♂ from Erromanga Island, New Hebrides, 1 km WSW of Nuangkau River bridge, 11 km WSW of Ipotak, 18° 54'S, 169° 11'E. Large grove of *Agathis*, in soil of 0.4 cm depth. Coll. no. NH 35. K. E. Lee leg. Aug. 7, 1971. In the South Australian Museum, Adelaide.

*Occurrence in the New Hebrides:* Erromanga Island (see above). Tanna Island, 8 km E of Lenakel near summit of main W-E road, 19° 30'S, 169° 20'E. Primary tropical rain forest, in soil of 0.4 cm depth. Coll. no. NH 30. K. E. Lee leg. July 27, 1971. One ♂, one larva II, one larva I,

Aneityum Island, near top of steep slope above East side of Anelcauhat Bay, 20° 15'S, 169° 46'E, Coastal forest with fire induced *Imperata*, in soil of 0.8 cm depth. Coll. no. NH 27. K. E. Lee leg. July 23, 1971. Two ♀.

**6. *Eosentomon noonadanac* Tuxen & Imadaté 1975: p. 367**

This species is in many respects different from all other *Eosentomon* species, most evident is the presence of a central posterior seta on abdominal sterna I-VII, see Tuxen & Imadaté 1975a. The specimen from the New Hebrides agrees in all details with the holotype.

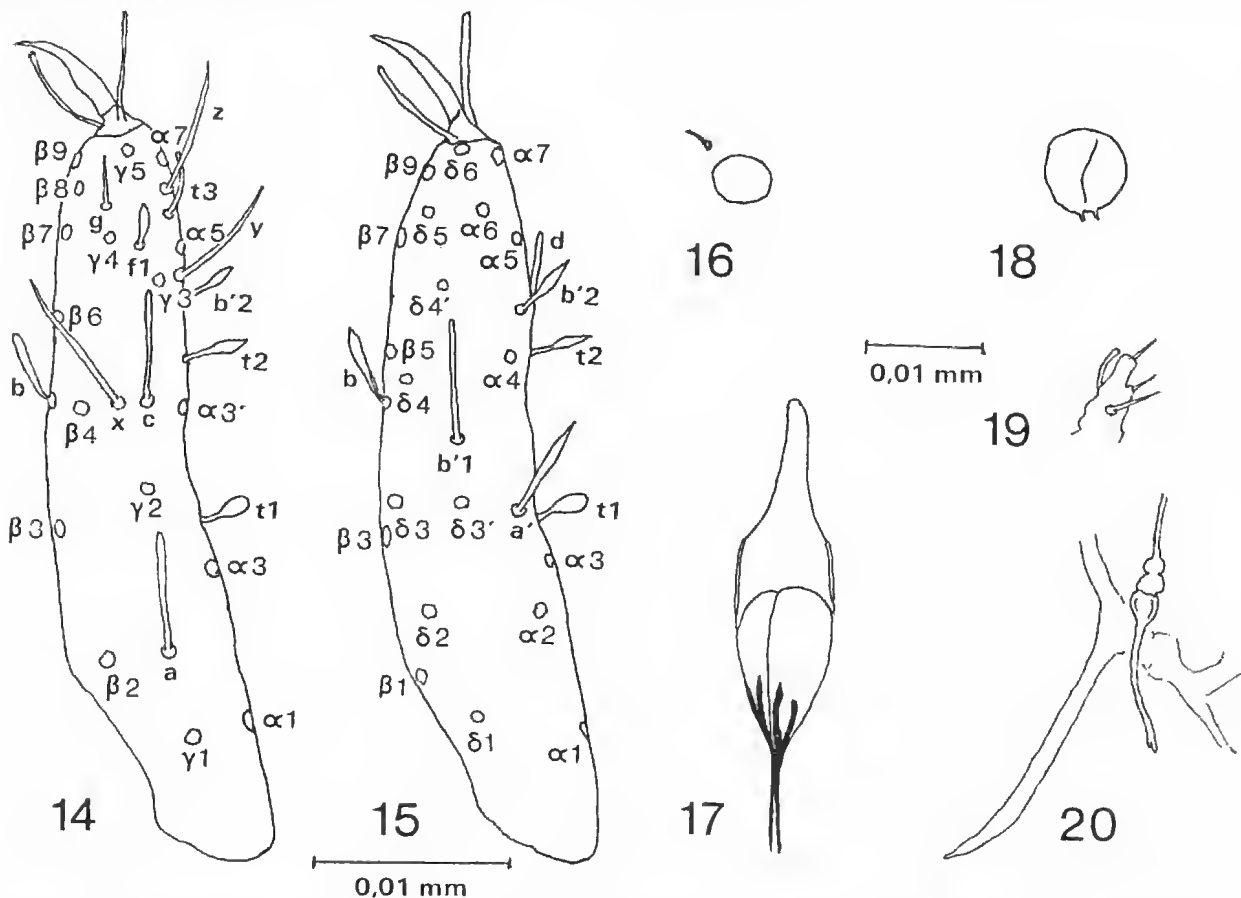
*Occurrence on the New Hebrides:* Malekula Island, Werimia, 2 km NE of Wintua village, SW Bay, 16° 28'S, 167° 27'E. Mixed mesophyll vine forest, in soil of 0.4 cm depth. K. E. Lee leg. Oct. 11, 1971. One matusus junior.

*Further distribution:* Valoka, New Britain, Bismarck Archipelago: the holotype and only previously known specimen.

***Isoentomon pumiliodes* n. sp.**

Figs. 14-17

The genus *Isoentomon* was erected by Tuxen in 1975 on species of "*Eosentomon*" with spini-or setiform sensillae e and g. It contained nine species, two of which differed from the others in missing sensilla e. To this group belongs the new species.



Figs. 14-17: *Isoentomon pumiliodes* n.sp. 14-15: Foretarsus in exterior and interior views. 16: Pseudoculus. 17: Female squama genitalis in oblique lateral view. Figs. 18-20: *Berberentulus tannae* n.sp. 18: Pseudoculus. 19: Labial palp in side view. 20: Canal of maxillary gland.

Length of body 530  $\mu$ m, of foretarsus without claw 50  $\mu$ m.

Mouthparts of the common shape, but the specimen is seen directly from the side. Pseudoculus small, circular, without "distinctions" (Fig. 13), PR = 14. Labral setae absent.

Foretarsus (Figs. 14-15). t 1 closest to  $\alpha$  3, t 2 lanceolate as are also b' 2 and f 1, t 3 fairly long.

b broad, e missing, g short seta-like. a' sword-shaped, placed anterior to t 1 (!), b' 1 present, c' absent (?). BS = 0.9, EU = 0.9, TR = 6.0.

Empodium of middle and hind leg short, one-fifth the claw.

Chaetotaxy: On thorax p 1' on segment III fairly long, behind the line p 1-2, abdominal chaetotaxy set out in Table 5—a 3 missing on

TABLE 5

Abdominal chaetotaxy of *Isoentomon pumiliodes* n.sp. Numbers above a line refer to the number of setae in the anterior row, numbers below the same line refer to the number of setae in the posterior row.

segment	I	II-III	IV-VI	VII	VIII	IX-X	XI	Telson
tergum	4	$\frac{8}{12}$	$\frac{8}{14}$	$\frac{6}{14}$	$\frac{6}{9}$	8	4	9
sternum	?	$\frac{6}{4}$	$\frac{6}{10}$	$\frac{6}{10}$	7	4	8	12

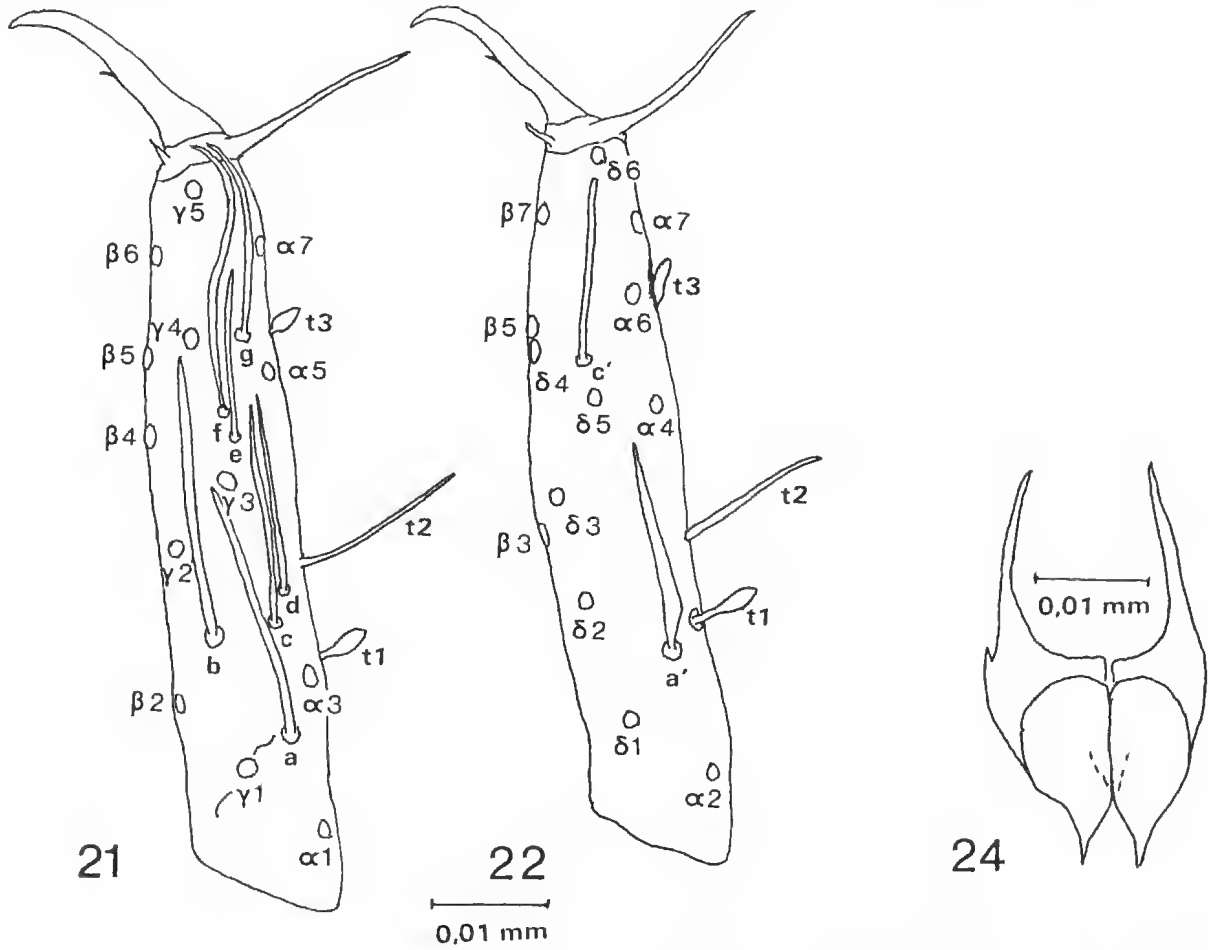
terg. II-VI, on terg. VII also a 1.—p 4' missing on terg. II-VII, on terg. II-III also p 5.—On terg. VII p 1' is as long as on the other tergites (a feature I do not remember having noticed on any other eosentomid)—On terg. VIII p 1''-2 are displaced anteriorly.

Female squama genitalis (Fig. 16) seen in lateral view, but resembles that of *pumilio* Bon.

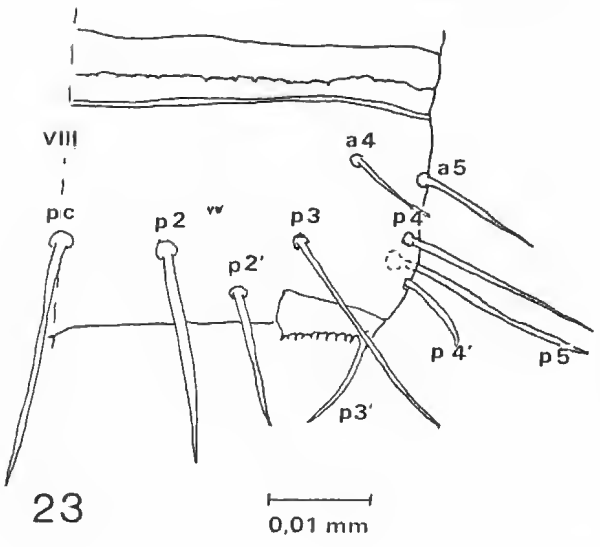
*Holotype* and only known specimen: ♀. New Hebrides, Tanna Island, on hillside above Bethel

village, 4 km S of Lenakel, 19° 33'S, 169° 13'E. Disturbed coastal forest, in soil of 0-4 cm depth. Coll. no. NH 31. K. E. Lee leg. July 28, 1971. In the South Australian Museum, Adelaide.

Three species of *Isoentomon* without sensilla e are now known, in only one specimen each: the present one from the New Hebrides, *I. pumilio* (Bon. 1950) from Mexico and *I. pluviale* Tx. 1975 from Brazil (Amazonia). They agree in many details, but the chaetotaxy of the present one is closest to that of *pumilio*—hence the name.



Figs. 21-24: *Berberentulus tannae* n.sp. 21-22: Foretarsus in exterior and interior views (from different specimens). 23: Right half of abdominal tergite VIII. 24: Female squama genitalis in ventral view.



8. *Berberentulus tannae* n. sp.

Figs. 18-24

This species is closely related to *B. rennellensis* Tx. & Imad. 1975, in fact it only differs in abdominal chaetotaxy. On terg. VI the anterior seta a 1 is present in *tannae*, absent in *rennellensis*. This may seem a minor difference, perhaps on subspecies level only, but as long as the importance of differences in chaetotaxy is not clearly understood it should be accorded specific rank. The difference in chaetotaxy is constant in both

species, *B. buchi* Tx. & Imad, which is different in chaetotaxy from both differs also in the sensilla e in foretarsus being much smaller than c.

Length of body 670  $\mu\text{m}$ , of foretarsus without claw 70  $\mu\text{m}$ .

No rostrum. Labial palp with three setae and a sausage-like sensilla (Fig. 17). Pseudoculus circular (Fig. 18), PR = 13. Canal of maxillary gland of normal shape except for some small dilatations (not excrescences) distal to calyx, proximal part fairly short, end dilatation bipartite (Fig. 19).

Foretarsus (Fig. 20) with sensillae of shape and length as in *rennellensis*. b-c-d may be on line or d placed a little distal to c. c and d close to each

other. Sensillae a, b and f extremely long. b' missing, a' long and sword-like reaching almost to  $\alpha$  4, BS = 0.5. Claw with a small flap which is said to be missing in *rennellensis* but this flap may be visible or not and is no good as distinguishing character. TR = 4.0. EU = 0.14.

Abdominal appendages II-III with two setae, the apical one less than half the subapical.

Striate band reduced, no striae. Comb on terg VIII oblique, with 10-11 small teeth (Fig. 22).

Female squama genitalis (Fig. 23) with pointed acrostylus.

Abdominal chaetotaxy set out in Table 6—on terg. II-VI a 1, 2, 5 are present, on terg. VII only a 5.

TABLE 6

Abdominal chaetotaxy of *Berberentulus tannae* n.sp. Numbers above a line refer to the number of setae in the anterior row, numbers below the same line refer to the number of setae in the posterior row.

segment .....	1	II-III	IV-VI	VII	VIII	IX	X	XI	Telson
tergum .....	$\frac{6}{12}$	$\frac{6}{16}$	$\frac{6}{16}$	$\frac{2}{16}$	$\frac{4}{15}$	14	12	6	9
sternum .....	$\frac{3}{2}$	$\frac{3}{5}$	$\frac{3}{8}$	$\frac{3}{8}$	4	4	4	4	6

*Holotype*: ♂ from the New Hebrides, Tanna Island, on hillside above Bethel village, ca. 4 km S of Lenakel, 19° 33'S, 169° 13'E. Coastal forest, in soil of 0.4 cm depth. Coll. no. NH 31. K. E. Lee leg. July 27, 1976. In the South Australian Museum, Adelaide.

Further material: seven ♀, four ♂, three mat. jun., one larva II (?) from the same locality and date.

The specific name is derived from the name of the island.

### 9. *Berberentulus capensis* (Womersley 1931)

*Berberentulus capensis* Wom., Tuxen 1964: p. 311.

This species is easily distinguished from *tannae* in the shape and size of sensilla a' in foretarsus which is short, only reaching  $\delta$  3, and broadly vase-shaped; furthermore sensilla f is placed midway between e and g and e is only a little more than half the length of c. In chaetotaxy

the following characters are important: terg. VI with eight anterior setae (1, 2, 4, 5), VII with six (1, 2, 5) and stern XI with six setae (1, 1', 2).

*Occurrence on the New Hebrides*: Tanna Island, on hillside above Bethel village, ca. 4 km S of Lenakel 19° 33'S, 169° 13'E. Coastal forest, in soil of 0.4 cm depth. Coll. no. NH 31. K. E. Lee leg. July 27, 1971. Two ♀, one larva II.

Aneityum Island, near top of steep slope above E side of Anelcauhat Bay 20° 15'S, 169° 46'E. Coastal forest with *Acacia spirorbis*, in soil of 4-6 cm depth. Coll. no. NH 26. K. E. Lee leg. July 23, 1971. One ♀.

*Further distribution*: South Africa, South-west Europe (Tuxen 1964); Australia (Tuxen 1967).

*Berberentulus capensis* (Wom.), *travassosi* (Silv.) from Brazil, and *nelsoni* Tx. from Brazil (both São Paulo) form a group of their own, related to *B. rennellensis* Tx. & Imad., *buchi* Tx. & Imad. and the above new species *tannae*, all three from Melanesia. See the key in Tuxen (1977).



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